

Serial No. 09/834,679
October 16, 2002
Page 3

REMARKS

Claims 1, 2 and 4-8 are pending in this application. By this Amendment, Applicant amends claim 1.

Claims 1, 2 and 4-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ormerod et al. (U.S. 6,118,207). Applicant respectfully traverses this rejection.

Claim 1 recites:

"A piezoelectric type electric acoustic converter comprising:
a plurality of piezoelectric ceramic layers which are laminated to
define a laminate;
main surface electrodes disposed on front and back main surfaces
of said laminate, an internal electrode disposed between respective
ceramic layers, and all of the ceramic layers are polarized in the same
direction which is a thickness direction thereof;
**said piezoelectric type electric acoustic converter generates
bending vibration in response to application of an alternating signal
between the main surface electrodes and the internal electrode; and
a resin layer arranged to directly contact and cover
substantially all of the front and back surfaces of the laminate;**
wherein
**said resin layer is made of a material having a Young's
modulus of about 1100 MPa."** (Emphasis added)

In contrast to the present claimed invention, Ormerod teaches a **conductive coating 18** covering the piezoelectric ceramic material 8 which "may be a metal alloy, a gel, or any other conductive material", **NOT** a resin layer. Alternatively, the conductive coating 18 may be coated by another coating of a non-porous hydrophobic material, such as parylene (see col. 3, lines 16-25). Thus, Ormerod clearly fails to teach or suggest "a resin layer arranged to **directly contact and cover** substantially all of the front and back surfaces of the laminate" (emphasis added) as recited in claim 1 of the present application because the conductive coating 18, NOT the parylene layer, directly contacts and covers the laminate. Although Ormerod et al. discloses that the electrically conductive layer 18 may act as the non-porous coating (see col. 4, lines 4-6), Ormerod fails to teach or suggest that such a conductive layer 18 could or should be

Serial No. 09/834,679
October 16, 2002
Page 4

a resin layer.

In addition, Ormerod fails to teach or suggest any specific Young's modulus for the conductive layer or the parylene layer, and certainly fails to teach or suggest "said resin layer is made of a material having a Young's modulus of about 1100 MPa" as recited in the present claimed invention.

Furthermore, Ormerod teaches a piezoelectric actuator which is actuated to bend when a DC current is applied thereto. The piezoelectric actuator of Ormerod does not produce any vibration, but rather merely bends in response to the application of the DC current. Thus, Ormerod fails to teach or suggest "a piezoelectric type electric acoustic converter" which generates "bending vibration in response to application of an alternating signal" as recited in claim 1 of the present invention.

In the Response to Arguments section of the outstanding Office Action, the Examiner alleged that the above-identified feature "is functional and adds no additional structural limitation." However, U.S. Courts have consistently held that such an allegation and conclusion is wrong:

"The court in Lemelson held that Mason does not stand for the broad proposition that a functional statement cannot be relied upon to patentably distinguish a claimed invention over the prior art. The erroneous belief that functional language ipso facto cannot precisely define novelty and structure was laid to rest in In re Swinehart, 58 CCPA 1027, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). In fact, the Federal Circuit has held that no limitation or wording anywhere in the claim can be ignored in determining patentability. In re Stencel, 828 F.2d 751 (Fed. Cir. 1987)."

Additionally, the Examiner alleged that "it would have been well known in the art that benders use laminates that are polarized in the same direction". However, the PTO has the burden under 35 U.S.C. §103 to establish a prima facie case of obviousness. See In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1984). This it has not done. The

Serial No. 09/834,679
October 16, 2002
Page 5

Examiner failed to cite prior art that remedies the deficiencies of Ormerod or that suggests the obviousness of modifying Ormerod to achieve Applicant's claimed invention.

Instead, the Examiner improperly relied upon hindsight reconstruction of the claimed invention in reaching his obviousness determination. To imbue one of ordinary skill in the art with knowledge of the invention, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1543, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). Pursuant to MPEP 706.02(a), the Examiner is hereby requested to cite a reference in support of his position that it was well known at the time of Applicant's invention to polarize all of the ceramic layers in the same direction. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. §1.107(b).

Accordingly, Applicant respectfully submits that Ormerod fails to teach or suggest the unique combination and arrangement of elements recited in claim 1 of the present application.

In view of the foregoing amendments and remarks, Applicant respectfully submits that claim 1 is allowable. Claims 2 and 4-8 depend upon claim 1, and are therefore allowable for at least the reasons that claim 1 is allowable.

In view of the foregoing Amendments and Remarks, Applicant respectfully submits that this Application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

Serial No. 09/834,679
October 16, 2002
Page 6

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: October 16, 2002


Attorneys for Applicant

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT LLP
10400 Eaton Place, Suite 312
Fairfax, VA 22030
Telephone: (703) 385-5200
Facsimile: (703) 385-5080

Serial No. 09/834,679
October 16, 2002
Page 7

VERSION WITH MARKINGS SHOWING CHANGES MADE

1. A piezoelectric type electric acoustic converter comprising:
a plurality of piezoelectric ceramic layers which are laminated to define a laminate;
main surface electrodes disposed on front and back main surfaces of said laminate, an internal electrode disposed between respective ceramic layers, and all of the ceramic layers are polarized in the same direction which is a thickness direction thereof;
said piezoelectric type electric acoustic converter generates bending vibration in response to application of an alternating signal between the main surface electrodes and the internal electrodes; and
a resin layer arranged to directly contact and cover substantially all of the front and back surfaces of the laminate; wherein
said resin layer is made of a material having a Young's modulus of about 1100 MPa.